The Effects of Curcumin and Near Infrared Light on Wound Healing and Tissue Regeneration

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The purpose of this researchers experiment is to find a cost effective solution that could save lives by healing infected, non-healing, chronic wounds. Curcumin is found to have positive effects on the human body such as an anti-inflammatory, lowering blood pressure, and antioxidant effects. This researcher hypothesized that the group with curcumin and near infrared light together will be the most impactful on wound healing and tissue regeneration in Girardia Tigrina. The researcher set up four groups each consisting of three petri dishes with a planarian and 2 mL of water in each. The dishes were labeled with the corresponding group letter and dish number(1-3). Group A was the control group with no exposure to near infrared light or curcumin. Group B was exposed to 50W of near infrared light. Group C was exposed to 20mg of curcumin. Group D was exposed to 50W of near infrared light and 20mg of curcumin. The researcher measured the length in mm of each planarian before and after cutting them. Over 11 days researcher took pictures of growth and recorded measurements. Pictures were taken with a dissecting microscope and camera. Images were analyzed through IC measure software to measure growth and regeneration. Results show that group A had regenerated from 80-89%, Group B and C 100% by day 11 and Group D 100% by day 9. In conclusion, the data showed that group exposed to both items regenerated the fastest. This study shows that the use of low-level light therapy and curcumin have great potential for expedited wound healing and tissue repair.

Awards Won: